

## The Australian Species of *Leptotarsus* and *Semnotes*.

(Fam. Tipulidae; Ord. Diptera)

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The closely allied genera of crane-flies, *Leptotarsus* Guérin and *Semnotes* Westwood, are chiefly Australian in their distribution, a single species of the former, *Leptotarsus annulipes* (Philippi), being found in Chile (see Alexander, Diptera of Patagonia and South Chile, Part I, Crane-flies, pp. 21—22, 1929). *Semnotes* is separated from *Leptotarsus* primarily on the reduction of the number of antennal segments to eight (instead of ten), the shorter terminal segment of the maxillary palpus, and the great size. Recent discoveries have shown that all of these characters tend to break down and it will probably be necessary to consider *Semnotes* as being a subgenus of *Leptotarsus*. Thus, the subgenus *Pseudoleptotarsus* has the intermediate number of nine antennal segments; *Leptotarsus caesarea* has the terminal segment of the palpus shortened, while this same species, among others, has a color pattern of the mesonotum that is very similar to that of *Semnotes*.

The novelties discussed in this paper are contained in extensive series of Tipulidae in the Macleay Collections of the University of Sydney and in the Australian Institute of Tropical Medicine. I wish to express my deep thanks to Dr. Ian Mackerras, Dr. A. A. Baldwin and Mr. Frank H. Taylor for the opportunity of studying these very valuable series of crane-flies.

Key to the Australian Species of *Leptotarsus* Guérin.

1. Cell  $M_1$  lacking (Subgenus *Pseudoleptotarsus* Alexander).  
(South Queensland) *lipophleps* Alexander
- Cell  $M_1$  present (Subgenus *Leptotarsus* Guérin). 2
2. Mesonotal praescutum fulvous, with three black stripes that are more or less confluent; abdomen fulvous, with segments three to nine blackened, pruinose laterally; genital segments slightly tinged with fulvous. (South-west Australia)

*trivittata* Skuse

Mesonotal praescutum with the disk not as above; where with evident stripes (as *caesarea*), these four in number, con-

- fluent by opaque interspaces and with the outer abdominal segments yellow. 3
3. Pleura and sternum of thorax entirely yellow or fulvous. 4  
Pleura and sternum of thorax more or less variegated with black or grey. 5
4. Wings pale brownish, the costal region darker, the disk unvariegated; praescutum chiefly polished black. (Eastern Australia) *macquarti* Guérin  
Wings dark brown, the costal region still darker, the basal portions of cells *R* and *M* conspicuously pale yellow; praescutum with the median area before the suture yellow. (South Queensland) *caesarea* sp. n.
5. Thoracic pleura pruinose; wings brownish, with three yellowish areas on the disk, the most conspicuous being postarcular and in the bases of cells *R*<sub>3</sub> and *R*<sub>5</sub>. (New South Wales) *cinereipleura* sp. n.  
Thoracic pleura more or less blackened; wings, except for the costal region, uniformly tinted with brown. 6
6. Thorax shiny black, with restricted paler areas, including the fulvous scutellum; pleura black, pruinose, including the coxae; first abdominal segment fulvous, segments three and four black, more or less pruinose, entirely without fulvous markings. (New South Wales) *scutellaris* Skuse  
Thorax fulvous, the praescutum chiefly shiny black; sternum shiny black, more pruinose laterally; postnotum with dark spots or a band on caudal margin; first abdominal segment fulvous with the caudal margin black; segments three and four fulvous, margined posteriorly with black, pruinose. (Tasmania, Victoria) *nigrithorax* (Macquart)

*Leptotarsus clavata* Macquart, described from Tasmania, is omitted from the key because of insufficient data. It runs to couplet 4, disagreeing with both included species. I am not certain that Skuse has correctly identified *nigrithorax* and the New South Wales records are omitted.

***Leptotarsus (Leptotarsus) cinereipleura* sp. n.**

General coloration fulvous-yellow; mesonotal praescutum black, only the lateral margins behind the humeri pale; pleura chiefly grey pruinose; legs black; wings brownish, the costal region even darker; three extensive cream-colored areas, placed just beyond the arculus, in cell *M* and in the bases of cells *R*<sub>3</sub>

and  $R_5$ ; intermediate abdominal tergites with the ground-color heavily pruinose; intermediate sternites with a median black vitta.

Male. Length about 17 mm; wing 21 mm.

Female. Length about 20 mm; wing 24 mm.

Frontal prolongation of the head fulvous-yellow, constricted near base, the nasus stout, concolorous; maxillary palpi with the basal segment obscure fulvous, the remaining segments black; terminal segment subequal to the preceding two taken together. Antennae with the scape fulvous-yellow, the flagellum black. Head fulvous-yellow.

Pronotum obscure fulvous-yellow, darker laterally. Mesonotal praescutum wholly black, except lateral spots behind the humeri; the usual four stripes a little more nitidous but similar in color to the interspaces; remainder of mesonotum fulvous-yellow, the extreme cephalic-lateral angles of the scutal lobes blackened, margined posteriorly with grey; a median dark spot on caudal margin of postnotum. Pleura chiefly grey pruinose, including the sternopleura, anepisternum and anterior border of the pteropleurite; remainder of pleura yellow, the dorso-pleural region somewhat more buffy. Halteres yellow, the knobs blackened. Legs with the coxae obscure yellow, the middle coxae pruinose; trochanters obscure yellow; remainder of legs black, the femoral bases very narrowly brightened. Wings with a strong brownish tinge, the prearcular and costal regions, including the stigma, darker brown; extensive pale yellow areas just beyond the arculus, occupying the bases of cells  $R$  to 2nd  $A$ , inclusive; at near midlength of cell  $M$ ; and a large cream-colored area, chiefly in the bases of cells  $R_3$  and  $R_5$ ; veins black, more yellowish in the creamy areas; most of the longitudinal veins except the anals are narrowly margined with brown, most conspicuously so in the cubital field. Venation: Cell 1st  $M_2$  elongate, subequal or slightly exceeding vein  $M_3$  beyond it, longest in the female.

Abdomen with the basal tergite yellow laterally, the central portion chiefly occupied by a black triangle; tergite two with more than the basal half shiny yellow, the posterior ring margined with black, subapically with a whitish area on either side; a narrow entire median black vitta; tergites three and four margined caudally with black, each of these areas sending a median point cephalad, the ground-color on either side fulvous, whitish-silvery pruinose; fifth tergite fulvous, pruinose, the caudal margin and

median line more narrowly blackened; remaining segments pale, with a white pruinosity; sternites fulvous, white pruinose, narrowly margined laterally with black; intermediate sternites with a narrow black median vitta. In the female, the median black vitta is less distinct on tergites two and five.

Hab. New South Wales.

Holotype, ♂, Woodford, November 30, 1925 (I. Mackerras).

Allotopotype, ♀.

Type in the Macleay Collection.

***Leptotarsus (Leptotarsus) caesarea* sp. n.**

General coloration golden-yellow; mesonotal praescutum with four shiny black stripes that are margined with dull greyish black, including the interspaces to produce a 1-shaped discal shield; median area before the suture pale yellow; pleura and sternum yellow; legs black; wings brown, the costal region darker, the posterior preacutal cells and broad bases of cells *R* and *M* pale yellow; abdominal segments without pruinosity.

Male. Length about 18 mm; wing 21 mm.

Female. Length about 22 mm; wing 25 mm.

Frontal prolongation of head fulvous, with a golden pollen; nasus conspicuosus; maxillary palpi short, including the terminal segment; basal segment yellow, the remaining segments black. Antennae with the scape light yellow, the flagellum black, the four outer segments more cylindrical. Head fulvous, the disk of the vertex more nitidous, the genae with a golden pollen; vertical tubercle low, bifid, the lobes with a microscopic golden pubescence.

Pronotum yellow. Mesonotal praescutum yellow, with an extensive black 1-shaped area, composed of four shiny black stripes that are margined with dull black, thus completely bridging the interspaces; posterior median portion of praescutum yellow; remainder of mesonotum yellow, the cephalic-lateral portion of each scutal lobe blackened, connecting the wing-base with the black praescutal shield. Pleura and sternum entirely golden-yellow. Halteres pale yellow, the base of the stem light brown, the knobs black. Legs with the coxae and trochanters yellow; remainder of legs black, only the extreme femoral bases restrictedly brightened. Wings with a strong brownish suffusion, the posterior prearcular cells and about the basal halves of cells *R* and *M* conspicuously pale yellow; cells *C* and *Sc*, with the

stigma, darker brown; narrow yellowish seams along the anterior cord; a small obliterative streak across the basal section of  $M_{1+2}$ ; outer radial cells more greyish; veins black, the posterior prearcular veins yellow. In the female, especially, the centers of the cells in the darkened areas are variegated with paler grey. Venation:  $R_3$  less extended than usual in the genus; cell 1st  $M_2$  relatively small, pentagonal; petiole of cell  $M_1$  subequal to or shorter than  $m$ .

Abdomen golden yellow, the caudal portion of tergite two and the caudal and lateral portions of tergites three and four blackened, enclosing transverse yellow discal areas on the latter segments; sternites two to four even more uniformly blackened; genital segments of both sexes yellow; tergite two extensively nitidous.

Hab. South Queensland.

Holotype, ♀, Dunwich, September 1926 (I. Mackerras).

Allotopotype, ♂, in poor condition.

Type in the Macleay Collection.

The female was selected as type because of its much more perfect condition.

#### Key to the Species of *Semnotes* Westwood.

1. Wings unicolorous, subhyaline or weakly tinged with brown. (Victoria, New South Wales) *imperatoria* Westwood.  
Wings dark brown, variegated with yellow or orange areas. 2
2. Wings dark brown, with two very restricted yellow areas, the discal one confined to cells  $R$  and  $M$ ; propleura and fore coxae blackened. (North Queensland) *regifica* Alexander  
Wings dark brown, the costal margin broadly orange, or, if darkened, with three separate yellow or orange areas; propleura and fore coxae orange (*ducalis*). 3
3. Tibiae almost uniformly blackened, only the posterior tibiae with a vague paler ring; median region of praescutum entirely orange. (North Queensland) *ducalis gloria* subsp. n.  
All tibiae with a broad yellow ring on proximal half; praescutum with a blackened shield, the usual three stripes entirely confluent. 4
4. Costal margin of wings broadly orange, including cell  $C$ . (New South Wales, North Queensland)

*ducalis ducalis* Westwood

Costal margin of wing orange, interrupted by the uniformly infumed costal cell. (South Queensland)

*ducalis bancrofti* subsp. n.

***Semnotes ducalis gloria* subsp. n.**

Female. Length about 20 mm; wing  $24 \times 6.8$  mm.

Fore leg, femur 10 mm; tibia 12.6 mm; tarsus 23 mm.

Middle leg, femur 14 mm; tibia 13 mm; tarsus 24 mm.

Hind leg, femur 15 mm; tibia 15.5 mm; tarsus 29 mm.

Differs from typical *ducalis* Westwood, chiefly in the reduction of the black coloration of the mesonotum and the almost uniformly blackened legs.

Head, including antennae, orange. Mesonotum deep orange, the only black markings being two oval areas on the praescutum, representing the cephalic halves of the lateral stripes, and two smaller triangular areas on the extreme anterior cephalic portion of each scutal lobe, immediately behind the suture. Pleura handsomely variegated orange and black; ground-color orange, with a transverse black girdle extending from the wing-root to the sternum, crossing the anepisternum and sternopleurite, this girdle interrupted by a small yellow spot on the first-named sclerite and three larger areas on the latter; this same girdle likewise includes the extreme cephalic portion of the pteropleurite. Posterior pleurites orange, the tubercle of the pleurotergite black. Halteres orange with black knobs. Legs with the fore coxae and trochanters yellow, the other coxae and trochanters black; femora black, the bases of the fore and middle femora narrowly yellow; remainder of legs black, the posterior tibiae with vague suggestions of a brighter ring beyond base; measurements of legs as above. Wings with the pattern much as in typical *ducalis*, the orange slightly more restricted in amount, the dark rays being represented in the costal cell; centers of the anal and cubital cells pale, margined with darker brown. Abdomen orange, variegated with black, including a broken median stripe, more developed on the laterally expanded segments three and four; genital segment orange.

Hab. North Queensland.

Holotype, ♀, Mossman, March 1927, resting on lower surface of leaf of tree in shaded gully, 3 P. M. (F. H. Taylor).

Type in the Australian Institute of Tropical Medicine.

*Semnotes ducalis bancrofti* subsp. n.

Male. Length about 18 mm; wing 23 mm.

Differs from typical *ducalis* Westwood chiefly in the wing-pattern.

Antennae with the second scapal segment brown, the basal fusion segment of the flagellum dark brown. Praescutal stripes confluent, the median one terminating in a point behind; each scutal lobe with two confluent black areas. Pleura yellow, with a transverse black girdle, occupying the mesopleura, confluent with the black praescutal shield across the dorso-pleural membrane; mesosternum extensively blackened; ventral portions of pleurotergite brownish black. Legs with the fore coxae fulvous, the others black; remainder of legs black, the femoral bases conspicuously orange, this including about the proximal fifth or sixth; tibiae with a conspicuous orange ring on the proximal half, this narrowest on the fore legs where it includes about one-fourth the total segment, broadest on the posterior legs where the ring is brighter in color, more clearly delimited and includes about one-third the total extent. Wings dark brown, the extreme base blackened as in the species; three isolated yellow areas, one prearcular, the second occupying cells *R* and *M* just before the origin of *Rs*, the third smallest, lying in the radial field with the center at the anterior cord; costal cell dark brown, only the portion basad of *h* being orange. Abdomen fulvous-orange, the basal tergite chiefly black; the elongate second tergite has only a caudo-median triangle; tergites three and four more extensively blackened, especially the latter; terminal segments fulvous-yellow with a narrow median black line; subterminal sternites similarly blackened; hypopygium fulvous.

Hab. South Queensland.

Holotype, ♂, Eidsvold (T. L. Bancroft).

Type in the Macleay Collection.

This beautiful crane-fly is named in honor of the veteran collector and student, Dr. T. L. Bancroft.

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